

IN THE CLAIMS:

Please cancel Claims 2, 9-13, 21-24, 28-31, and 39-42 without prejudice to or disclaimer of the subject matter presented therein.

Please amend Claims 1, 3-8, 14, 16-20, 25, and 32-36 as follows.

1. (Currently Amended) An image observation apparatus comprising:
an image pickup system, configured and positioned to acquire ~~for acquiring~~ an outside image via ~~of~~ an object to be viewed by an eye, denoted as an object image,
including:
an image pickup optical system receiving light from the object; and
an image pickup device receiving light from said image pickup optical system to
acquire an image of the object; system; and
a display system, including:
display means for displaying the outside object image acquired by the said image
pickup device system on display means; and
an eyepiece optical system configured and positioned to guide guiding light from
the said display means via an eyepiece optical system to an eye,
wherein the ~~in which~~ a position of an exit pupil of the said eyepiece optical system
is approximately matched with a the position of an entrance pupil of the eye ~~an ocular~~
~~optical system~~, so as to permit observation of the image by the eye,
wherein an outside optical axis of the said image pickup optical system
connecting said image pickup optical system with the object is approximately aligned with
an extension line of an eye-side optical axis of the said eyepiece optical system, and

wherein said image pickup device and said image pickup optical system are positioned closer to said display system than an image pickup device and image pickup optical system positioned to place the entrance pupil of said image pickup optical system at a position optically equivalent to the position of the exit pupil of said eyepiece optical system, thereby shifting the ~~an~~ entrance pupil of the ~~said~~ image pickup optical system is shifted in a direction toward the object outside from a position optically equivalent to the entrance exit pupil of said eyepiece optical system the ocular optical system, and

wherein the following condition is satisfied:

$d \leq 60 \text{ (mm)}$

where d is a shift amount of the entrance pupil of said image pickup optical system relative to the position equivalent to the entrance pupil of the eye.

2. (Cancelled)

3. (Currently Amended) The image observation apparatus according to claim 1 or 2, wherein an angle of image pickup view of the outside image acquired by said image pickup system is approximately equated to an angle of display view of display by said display system.

4. (Currently Amended) The image observation apparatus according to claim 1 or 2, which comprises image generating means for generating an image and image combining means for combining images, wherein said image combining means combines the image

from the image generating means with the image from said image pickup system to form a synthetic image and displays the synthetic image on said display means.

5. (Currently Amended) The image observation apparatus according to claim 1 or 2, wherein said image pickup system comprises a prism consisting of a plurality of planes, wherein said prism comprises a plane having transmission action and total internal reflection action, and wherein light having passed through the prism is guided to an image pickup device by an optical element having a positive optical power.

6. (Currently Amended) The image observation apparatus according to claim 1 or 2, wherein said image pickup system comprises a decentered, rotationally asymmetric, reflecting surface with optical powers differing depending upon azimuthal angles.

7. (Currently Amended) The image observation apparatus according to claim 1 or 2, wherein said display system comprises a decentered, rotationally asymmetric, reflecting surface with optical powers differing depending upon azimuthal angles.

8. (Currently Amended) An image observation system wherein a pair of the image observation apparatus in claim 1 or 2 are provided for the left and right eyes of an observer.

9-13. (Cancelled)

14. (Currently Amended) An image observation apparatus comprising:

an image pickup system, including an image pickup optical system, configured and positioned to acquire for acquiring an outside image of an object to be viewed by an eye, denoted as an object image, via an said image pickup optical system; and system;

a display system, including:

display means for displaying the outside object image acquired by the said image pickup system on display means; and

an eyepiece optical system configured and positioned to guide guiding light from the said display means via an eyepiece optical system to an eye, in which wherein the position of an exit pupil of the said eyepiece optical system is approximately matched with a the position of an entrance pupil of the eye an ocular optical system, so as to permit observation of the image by the eye; and ,wherein said display system comprises

a prism body having a decentered, rotationally asymmetric, reflecting surface with optical powers differing depending upon azimuthal angles,

wherein an outside optical axis of the said image pickup optical system connecting said image pickup optical system with the object is approximately aligned with an extension line of an eye-side optical axis of the said eyepiece optical system,

wherein an entrance pupil of the said image pickup optical system is shifted in a direction toward the object outside from a position optically equivalent to the entrance exit pupil of said eyepiece optical system compared to the position of an entrance pupil of an image pickup optical system that is optically equivalent to the exit pupil of said eyepiece optical system the ocular optical system, and

wherein, where ~~an~~ the amount of the shift is d, the shift amount d satisfies the following condition:

$$d \leq 60 \text{ (mm).}$$

15. (Original) The image observation apparatus according to claim 14, wherein said image pickup system comprises a reflecting surface and wherein a direction of deflection of the optical axis by the reflecting surface is a direction different from a direction of deflection of the optical axis by the reflecting surface of said display system.

16. (Currently Amended) The image observation apparatus according to claim 14 or 15, wherein an angle of image pickup view of the ~~outside~~ object image acquired by said image pickup system is approximately equated to an angle of display view of display by said display system.

17. (Currently Amended) The image observation apparatus according to claim 14 or 15, which comprises image generating means for generating an image and image combining means for combining images, wherein said image combining means combines the image from the image generating means with the image from said image pickup system to form a synthetic image and displays the synthetic image on said display means.

18. (Currently Amended) The image observation apparatus according to claim 14 or 15, wherein said image pickup system comprises a prism consisting of a plurality of planes, wherein said prism comprises a plane having transmission action and total internal

reflection action, and wherein light having passed through the prism is guided to an image pickup device by an optical element having a positive optical power.

19. (Currently Amended) The image observation apparatus according to claim 14 or 15, wherein said image pickup system comprises a decentered, rotationally asymmetric, reflecting surface with optical powers differing depending upon azimuthal angles.

20. (Currently Amended) An image observation system wherein a pair of the image observation apparatus in claim 14 or 15 are provided for the left and right eyes of an observer.

21-24. (Cancelled)

25. (Currently Amended) The An image observation system according to claim 8, in which a pair of image observation devices are provided for the left and right eyes of an observer, each of said image observation devices comprising an image pickup system for forming an outside image system, and a display system for guiding light from a display element displaying the outside image acquired by the image pickup system, to the observing eye by a display optical system and each of said image observation devices being arranged so that an outside optical axis of the image pickup optical system is approximately aligned with an extension line of an extension line of an eye-side optical axis of the display optical system; wherein the image pickup device of the image pickup system of each image pickup device of the image pickup system of each image observation

device observation apparatus is shifted horizontally by a predetermined distance relative to the optical axis of the image pickup optical system, wherein the display element means of each image observation device apparatus is shifted horizontally by a predetermined distance relative to the optical axis of the display eyepiece optical system, and wherein the optical axes of the image pickup optical systems and the optical axes of the display eyepiece optical systems in the pair of image observation devices apparatuses for the left and right eyes are parallel to each other.

26. (Original) The image observation system according to claim 25, wherein focus positions of said image pickup optical systems for the left and right eyes are matched with each other, shift amounts of said image pickup devices are set so as to match positions conjugate with centers of the respective image pickup devices by the image pickup optical systems for the left and right eyes with each other, positions of virtual images of said display elements by the display optical systems for the left and right eyes are matched with each other, and shift amounts of the display elements are set so as to match positions conjugate with centers of the respective display elements by the display optical systems for the left and right eyes with each other.

27. (Original) The image observation system according to claim 26, wherein said focus positions are matched with said positions of the virtual images.

28-31. (Cancelled)

32. (Currently Amended) The image observation system according to ~~either one of claims 25 to 27~~ claim 25, wherein said display optical system of each image observation device comprises a decentered, rotationally asymmetric, reflecting surface with optical powers differing depending upon azimuthal angles.

33. (Currently Amended) The image observation system according to ~~either one of claims 25 to 27~~ claim 25, wherein said image pickup optical systems are zooming optical systems.

34. (Currently Amended) The image observation system according to ~~either one of claims 25 to 27~~ claim 25, which comprises image processing means for changing a display magnification when the ~~outside object~~ images acquired by said image pickup systems are displayed on said display elements.

35. (Currently Amended) The An image observation system according to claim 8, in which a pair of image observation devices are provided for the left and right eyes of an observer, each of said image observation devices comprising an image pickup system for forming an outside image on an image pickup device by an image pickup optical system, and a display system for guiding light from a display element displaying the outside image acquired by the image pickup system, to the observing eye by a display optical system and each of said image observation devices being arranged so that an outside optical axis of the image pickup optical system is approximately aligned with an extension line of an eye-side optical axis of the display optical system via an optical member, wherein the image pickup

device of the image pickup system of each image observation device apparatus is arranged so that a center thereof is shifted by a predetermined distance in a direction perpendicular to the optical axis of the image pickup optical system and wherein the display element means of each image observation device apparatus is arranged so that a center thereof is shifted by a predetermined distance in a direction perpendicular to the optical axis of the display optical system.

36. (Currently Amended) The image observation system according to claim 35, wherein the outside system-object optical axes of said pair of image pickup optical systems for the left and right eyes are parallel to each other.

37. (Original) The image observation system according to claim 36, wherein positions of an object formed on said image pickup devices by said image pickup systems are matched with positions where virtual images of said display elements are formed by said display systems.

38. (Original) The image observation system according to claim 37, wherein object-side positions of centers of said image pickup devices by said image pickup systems are matched with positions where virtual images of centers of said display elements are formed by said display systems.

39-42. (Cancelled)